

On page 10, please delete line 25.

In the Claims:

Please cancel claims 1 to 3 and add claims 4 to 6 as follows:

4. A method for operating a sensor for determining the concentration of oxidizing gases in gas mixtures including the nitrogen oxide concentration in exhaust gases of an internal combustion engine, the sensor including: a first chamber disposed in a solid state electrolyte, the chamber being connected to the gas mixture via a first diffusion barrier; a second chamber arranged in the solid state electrolyte and said second chamber having a pregivable constant oxygen partial pressure; an oxygen pump electrode subjected to the exhaust gas on the solid state electrolyte; a further oxygen pump electrode and an NO pump electrode in said first chamber; and, an oxygen reference electrode arranged in said second chamber; the method comprising the steps of:

applying a voltage to the electrodes and evaluating a pump current as a measurement signal;

changing the voltages (U_{IPE} ; U_{O2} ; U_{NO}), which are applied to the electrodes, in dependence upon the currents, which flow in the electrode feed lines and/or between the electrodes, during operation of the sensor in such a manner that the voltages correspond to pregivable desired values; and,

applying said voltages to the electrodes in the interior of

said sensor.

5. The method of claim 4, wherein voltages are added to the voltages applied to the electrodes, these added voltages corresponding to a feedback of voltage components weighted with factors (K1, K2, K3, K4, K5, K6) which voltage components are proportional to the currents, which flow in the electrode feed lines and/or between the electrodes during operation of the sensor and/or are proportional to the sliding mean values of the voltages, which are proportional to the currents and which are formed by means of electric circuit elements and/or the derivatives of higher order and/or their sliding mean values or linear combinations thereof.

6. The method of claim 4, wherein at least one of the factors (K1, K2, K3, K4, K5, K6) is increased so long until an oscillation occurs because of the feedback and that one slightly reduces this factor (K1, K2, K3, K4, K5, K6) by an amount determined experimentally so that just no oscillation occurs anymore.